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ABSTRACT

This document is intended to stimulate the development of a statewide system to support the improvement of teaching in Maine's secondary vocational schools. It is arranged in three parts. Part 1 assesses the professional demands on Maine's vocational teachers in the following competency areas: understanding students, managing the laboratory environment, manipulating knowledge, and using productive teaching strategies and teaching decisions. Part 2 builds on the principles established in part 1 to construct the framework for a model for developing teaching skills, knowledge, and judgment. In the third part of the document, nine suggestions are made for providing beginning vocational teachers with appropriate preteaching experiences, for beginning teaching, and for continuing teachers' professional development. The following are among the suggestions made: (1) provide mandatory preteaching institutes at regional sites for new entrants to the profession who have had no introduction to teaching; (2) use experienced vocational teachers and specialists to conduct the institutes; (3) train administrators, veteran teachers, and specialists in the principles of mentoring and make them available for individualized mentorships and small group seminars for at least two years; (4) involve all secondary vocational educators in training designed to create a common language of teaching for the state's vocational schools and use it in professional development activities; and (5) make instructional development in the vocational setting a major and continuous focus of regional resource networks, state educational administrative bodies, and professional associations. (MN)

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From Craftsperson to Teacher:

A Planning Document for a Vocational Teacher Development System in Maine

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FROM CRAFTSPERSON TO TEACHER

Introduction and Purpose

The purpose of this document is to stimulate the development of a statewide system to support the improvement of teaching in the secondary vocational schools of Maine. While productive services already exist for this purpose, this report intentionally applies a fresh perspective to the challenges of vocational teacher improvement. In doing so, it aspires to galvanize thinking and planning in the state that will eventually improve the educational experience of Maine's secondary vocational students.

The report targets the many technical experts who, as newly hired teachers or as veterans, teach in our vocational centers. It particularly addresses the challenge of bringing the "new hire" up to speed without the benefit of extensive time and a full teacher training experience; but it speaks as well to the challenge of improving the teaching skills, knowledge, and professional judgment of experienced vocational educators. This document assumes that the master tradesperson can, with proper support and direction, be a master vocational instructor.

The topic of instructional improvement at the secondary vocational school has not been widely explored on a national level and has not been the object of sustained research in Maine. It is, however, viewed increasingly as a vital need. Rupert Evans, in his 1978 text on vocational education, noted that "only a dozen or so programs for the development of vocational education personnel exist in North America" (p. 280). Noting that the field has always assumed that training in the "inidividual trade program" or in the technical area itself would constitute adequate preparation for teaching in vocational schools, Evans reports that preparation for vocational teaching has been "fragmented".

Only recently have leaders turned to considering "unified" vocational teacher education programs in which the special challenges and opportunities of the vocational school environment could be addressed. Gwen Cooke in her 1985 publication, "Toward Excellence in Vocational Education: Improving Teaching", noted that "teachers will continue to be the critical factor affecting the success (excellence) of school programs" and called for vocational educators to identify "the nature of...teacher excellence, model programs, and the support required to provide for excellence in teaching" (p. 33). Similarly, Dubrovcic, Chinien and Pratzner in 1986 reported that "to date, very little has been written that directly addresses the improvement needs of vocational teachers, and the literature on assessment of vocational teachers is scarce" (p.2).

That Maine is ready to lead in the effort to articulate effective secondary vocational teaching and to address the means

of achieving and sustaining successful teaching in its centers is commendable. Indeed, the time is ripe. Certification reform, school improvement programs, and Maine's ongoing reliance on craftspeople who lack formal training in teaching make the topic timely and the need to address it urgent.

The document is arranged in three parts. First, it assesses the professional demands on the Maine vocational teacher in four fundamental competency areas: understanding students, managing the lab environment, manipulating knowledge, and employing productive teaching strategies and teacher decisions. Part II builds from the foundation of principles outlined in Part I to construct the framework of a model for developing teaching skills, knowledge, and judgment. Finally, Part III makes suggestions for a system to develop these qualities in newly recruited tradespeople and for sustaining and improving the work of all Maine's secondary vocational instructors.

Part I: The Secondary Vocational Teacher: What the Work Entails

Any discussion of teacher development must begin with an assessment of the teacher's purposes. By first asking, "What is the teacher supposed to do?", we establish a baseline for answering the bigger question, "What do we want to develop our teachers to do?" This part of the report establishes some basic purposes of the secondary vocational educator in Maine by way of setting some basic goals for a program of teacher development.

In this effort, it is vital that planners work with a manageable model. We have begun by considering existing models (Barlow, 1974; AAVIM, 1978; Abramson, Tittle,and Cohen, 1979; Rice, 1982; Goetsch, 1983). Many of these have task-analyzed teaching, identified competencies, and created self-teaching modules to fit the realities of a decentralized vocational education system and the vocational teacher market. We have departed from this approach. By applying models available for teacher development (McLaughlin and Marsh, 1978; Joyce and Showers, 1987), we have created a simplified model which assumes that teachers need sustained assistance, practice, and room to experiment if they are to have the best chance of becoming and staying effective.

The work of a vocational educator, like that of any teacher, involves the successful execution of practices in four vital dimensions:

- understanding and responding to students
- managing and manipulating the environment
- understanding and manipulating knowledge

and - integrating these three dimensions into effective teaching decisions and actions

The first three of these dimensions might be seen as building blocks for the fourth. Clearly, the successful teacher cannot exist without competencies in all four; the difference between an adequate teacher and a strong teacher often lies in the extent to which they have developed themselves in the fourth dimension. The remainder of Part I will explore these four dimensions.

Maine's Secondary Vocational Clientele: The Students

The educator who takes a position in one of Maine's vocational centers or regions will, on the first day of school, meet his or her first "competency test": how will I approach and successfully handle the kids? The successful educator will be expected by colleagues, administrators, board members, parents, and students themselves to be capable in this complex endeavor. What demands does this task place on the teacher?

Although a great deal has not be written about what vocational high school students are like, certainly it is the topic of

extensive discussion in every school and state. Substantial data exist at both state and national levels to indicate that in general secondary vocational students perform less capably on basic skills achievement tests in all areas than do nonvocational students (Lotto, 1983; DECS, 1987). Similarly, reports indicate that tracking by ability and achievement in the high school tends to direct disproportionate numbers of less able and learning handicapped students toward secondary vocational schools (Lotto, 1983; Cooke, 1985). This indeed seems to be the case in Maine (DECS, 1987). In addition, the experience of numerous educators suggests that students of this nature coming to a Maine vocational school at 16 or 17 years of age has built up resistance to "regular education" strategies which, in many cases, have blossomed into resentment and damaged self-image as learners. When considered on top of the normal list of adolescent discontents, these vocational student attributes indeed make a unique teaching clientele.

For purposes of simplification, the Maine secondary vocational student can be characterized by a number of statements. The reader must be cautioned that this characterization by no means fits all students; however, it is intended to describe a typical student, the sort of student we must consider when training our vocational educators. That student might:

1. be a voluntary participant in vocational school and thus be assumed to look forward to working and learning there

2. have a history of low to poor achievement in school

3. have a peer group with similar achievement and interest, supported by a history of "low track" classes in school

4. believe that he or she cannot learn and have a low tolerance for frustrating and traditional learning tasks

5. be inclined to greater physical activity and to a learning style which is kinesthetic/tactile

6. aspire to work roles and careers found in his/her locality for which the vocational school can offer preparation.

This typical vocational student, it should be clear, is likely to be different from the typical "mainstream" Maine high school student. This difference is reinforced by the fact that he or she has selected the vocational opportunity and, in turn, has been selected for it through years of schooling.

The Vocational Learning Environment

Just as the type of student will determine what the vocational teacher should be prepared to do, the nature of the learning environment found in most Maine vocational schools places

competency demands on the classroom educator. The typical teaching situation is quite different from that of the average high school in a number of ways. Each of these attributes of the learning/teaching environment suggests specific training needs; the bottom line is that secondary vocational teachers must develop unique competencies to handle the setting in which vocational education usually occurs.

Recent research into the importance of using the environment well suggests that this dimension of vocational teaching is a critical one (Peterson and Walberg, 1979 ;Crowe, Hettinger, Weber, and Johnson, 1986; Halasz and Desy, 1984). These studies and the experience of vocational educators indicate the following major elements exist in most secondary vocational learning situations:

1. a single teacher is responsible for between 12 and 16 students

2. space for learning is greater than in a classroom and may include diverse areas, indoors or out, at school or elsewhere

3. a wide variety of learning materials and equipment exists

4. the time in which students are to learn is undifferentiated; in Maine, it may range from 2 to 5 hours, depending on the school.

5. students are called upon to speak more often than write, to use mathematics frequently, and to perform specified tasks under close supervision and limitations

6. contacts with peers are frequent, as are cooperative learning and working tasks

In general, reports on vocational learning environments stress the complexity of the teaching situation in the typical vocational school (Crowe et al, 1986).

Technical Knowledge and the Curriculum

The third major component of the vocational educator's teaching background is the technical knowledge in the field in which he or she instructs. For the purposes of this report, we assume the secondary educator has demonstrated his or her own proficiency in this regard prior to employment. The teacher's task, then, is to use that technical knowledge appropriately in the instructional process. The difficulty of that task is often vastly underestimated.

Maine's existing training and inservice opportunities tend to assume that, once hired and certified as technically proficient, the vocational educator's trade knowledge needs only periodic

updating (courses and materials available to vocational educators, such as those at the Vocational Curriculum Center in Waterville, stress pre-packaged curriculum, for example). Several basic requirements present themselves in this regard, however, which emphasize the need for vocational teachers to constantly shape their knowledge and their curriculum to the students:

1. technical knowledge includes knowledge of the science underlying the work, of the means of production or service delivery, and of the safety and work habit requirements of the workplace.

2. technical knowledge and skills must be understood by the teacher in a manner that they can be conveyed to students

3. that understanding must include an awareness of how the knowledge and skills fit together and support one another

4. the technical proficiencies required for "entry level competencies" must be identified and must be translated into terms amenable to evaluation in the vocational laboratory

Fundamental to the teacher's grasp of his or her field of knowledge is the assumption that the teacher's technical expertise is current and relevant to the immediate job markets to which students aspire (Wonacott and Hamilton, 1983).

The Special Challenges of Vocational Teaching: Putting it Together

Educators have long been aware that simply having the tools does not make a successful teacher. Although succeeding with students, successfully managing the environment, and "knowing" your field will each carry the vocational educator a long way toward success as a teacher, these separate strengths are not enough. **The successful teacher is that person who can integrate his or her knowledge and skills in all three areas and, most importantly, make the appropriate decision to use the best strategy for teaching his or her particular student group at the proper time** (Hunter, 1984; Good and Brophy, 1982). Strong teaching most critically hinges upon the teacher's ability to manage a complex process involving the diagnosis of student needs, the prescription of appropriate knowledge and activities, implementation of teaching strategies through teaching and management of the setting, evaluation of results, and reteaching where necessary. In the vocational school environment where so many options for teaching and learning exist, this ability to integrate important information and use it for sound pedagogical decisions is even more significant than in the more controlled surroundings of a traditional classroom.

What, then, are the special requirements of the vocational educator? Building from the sixteen characteristics noted in the previous three sections, we have brought recent thinking in

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effective teaching research and theory to bear on this question. This process has generated several major principles which, in our consideration, should provide a foundation for a professional development program for Maine vocational educators. Sources for this discussion include Vocational Instruction (AVA;1980), Cooke (1985), Dubrovcic et al (1986), Halasz and Desy (1984),and selected teacher training manuals for vocational curricula (eg. "Introduction to Related Subjects Instruction and Inservice Training Materials", Conserva Inc., 1982).

Principle #1 Maine's teachers must **understand adolescents and be capable, through assessment and planning, of motivating them** to learn in both the technical and personal management spheres. Here, the vocational educator learns to draw on an understanding of the student to shape his or her own plans and behaviors to meet the goals of the program. This competency will involve:

a) learning about students with low self-images as learners

b) learning how adults shape student attitudes

c) learning how work habits and technical skills are formed

d) developing a tolerance for teen-agers

Principle #2 Maine's teachers must **understand the instructional impacts of different arrangements of space, time, equipment, and instructional objectives and be able to manipulate these** variables for maximum impact. The typical vocational teacher will have rich resources to use in teaching and considerable flexibility in using them (depending on the length of the student day). The teacher must see these as viable choices in the process of planning learning experiences for students. He or she will be required to:

a) learn to manage the lab area so that it is purposefully structured for learning

b) learn to supervise and direct students within that environment to meet the objectives of the program

c) understand the variations in learning styles among students and use learning resources to match student styles

d) use the social setting of the lab to teach cooperative work skills and enhance individual learning by peer and group learning

Principle #3 Maine's teachers must **be capable of analyzing their own technical knowledge, identifying alternative ways of conveying it to teen-agers, and resourcefully transmitting it**. Given the variety of students in most schools and their past records of poor success in school, conveying new information through traditional

didactic, verbal means is not likely to succeed. Conversely, students are apt to learn the competencies which form the goals of most curricula through active practice and some trial-and-error. These are difficult modes for teachers to use in instruction, particularly when using them with 12 to 16 students at a time. The teacher, then, is required to:

a) understand the various ways people learn (styles or modes) and be capable of using them to convey his or her special knowledge

b) understand the structure of his or her own technical knowledge in order to make appropriate sequencing and presentation decisions.

c) evaluate the level of student knowledge and the degree of proficiency at skills

d) use the knowledge gained by continuous student evaluations to redirect or extend a learning program for the student

e) define in terms which can be documented the knowledge, skills, work habits, and personal attitudes necessary for "entry level competency" in the field

Principle #4 Maine's vocational teachers must **possess skills to enable them to communicate a) technical information, b) personal performance, behavior and attitude goals and feedback, and c) individual and group instructions.** These communication skills serve as a medium through which all other knowledge and skills must pass if the teacher is to serve successfully. Hence they are vital. They include the teacher's ability to:

a) articulate clearly and logically facts, ideas, and procedures.

b) articulate with appropriate sensitivity to the student aspects of the student's technical performance and work conduct in such a way that the student can improve (coaching)

c) specify standards for academic performance and workplace conduct in a manner which students understand and reinforce these standards in daily teacher behaviors

d) maintain detailed records of periodic evaluations of student progress in all goals governing the program

Principle #5 Maine's vocational teachers must **be capable of managing the various work and learning tasks and the students within the various work environments required in the field** in a manner which assures safety, instruction, and positive work habits and attitudes. This competence is sometimes known as "seeing with

the eyes in the back of your head", that ability to use all of your senses and facilities to know what is going on in a busy workplace all the time. It is the key integrating competence for the vocational teacher, requiring him or her to:

a) develop a sensitivity to the critical indicators in the instructional workplace which signal that work is occurring safely and productively.

b) be capable of attending to the entire instructional workplace and to a specific student and task simultaneously

c) develop systems for collecting information on individual performance in the instructional workplace and for giving immediate feedback as the work procedes

d) be capable of controlling the equipment and the students in general and in the event of an emergency of impending emergency

These five principles are necessarily general because they are fundamental to all effective teaching practices in the vocational setting. They, in summary, address the competencies required of a secondary vocational teacher in Maine with regard to their handling of **students, the teaching tools, technical knowledge, communication processes, and the entire environment**. Each principle suggests that the successful teacher must integrate knowledge and skills into a useful, practical implement in the teaching process.

The preceding pages have explored the meaning of teaching effectiveness in the secondary vocational schools of Maine. It has been our purpose to lay the necessary foundation for any discussion, program development, or policy dealing with the training and support of our vocational teachers. Put bluntly, no coherent approach to teacher development can occur without such a map of what an effective teacher needs to know and do. While the description presented here is hardly the last word on vocational teacher effectiveness, it represents a fresh but informed attempt to conceptualize that important role in Maine.

The more complex matter which now arises is, "How does a vocational teacher acquire these areas of knowledge, specific skills, and grander 'integrating' competencies?" In Part II, we investigate this question before, in Part III, exploring its implications for Maine.

PART II: THE DEVELOPING SECONDARY VOCATIONAL TEACHER

> "The only alternative for a teacher in a complex environment who cannot adjust to multiple demands and is not being helped to acquire the abilities to think abstractly and autonomously is for the teacher to simplify and deaden the instructional environment".
>
> Carl Glickman (1985, p.2)

Many points of view have been taken on the proper way to train teachers. We approach this topic from a certain perspective (as was requested of us). We view the matter less as "training" and more as "development" (Loucks-Horsley, 1987). That is, we will assume that all teachers, from the raw recruit to the seasoned veteran, can improve their knowledge about topics central to teaching and can improve the ways they use this knowledge to cultivate in students better work habits, greater skill levels, and deeper knowledge.

Part II will assume that the assertions and conditions shared in Part I are true for Maine and most of Maine's secondary vocational schools. From this baseline, we will investigate first how teachers can develop a background knowledge of students, an understanding of the fundamental variables in the learning environment, and a grasp of basic curriculum design relevant to their technical fields. We then present five basic areas in which the teacher must actively develop what we call pedagogical skills and judgment, the keystones of teacher development.

Teacher Development Occurs in Phases

Teachers are almost universally expected to be intentional in their work and to be capable of self-evaluation and self-correction. Part I has listed five principles describing the qualities Maine's vocational teachers might possess to make their work purposeful and effective. How do teachers acquire these qualities? A basic premise upon which Part II is based is that this occurs in a process which has three major phases; these are phases which generally occur in sequence but which overlap each other continually as development occurs.

Teachers' behaviors and decisions are directly influenced by how they think about students, the lab environment, their trade and curriculum, and their purposes as teachers. Vocational teachers with little or no background in teaching often have sophisticated understandings of their technical fields but lack such understanding in the vital topics of the teaching field. To permit the development of teaching, a basic intellectual understanding of these central matters in the teaching process must exist. This

"intellectual understanding" is the product of the first phase, a phase which typically involves learning about the components of teaching away from the teaching situation itself.

Second, the development of effective teaching ultimately involves the **use** of knowledge in one's behaviors. While facts and theories about vocational students, for example, can be learned in isolation from students, this knowledge has not been tested to see how well it "fits" the real world. A second phase of teacher development focuses on applying the knowledge and on testing it through structured practice. Here, teachers observe and interact with real teaching problems and processes and have the time and assistance to apply their knowledge about students or the trade to what they see. Further, they have access to practicing teachers, to simulations, or to limited teaching opportunities in which they can try their hands at specific parts of the teaching process. In this manner, they find out what works for them to a limited extent **before** they have a full assignment.

Finally, teachers develop their most stable teaching habits and their most durable teaching knowledge after they begin teaching. Hence, the most vital point at which to provide developmental assistance to teachers is when they start the job. This third phase requires an extensive support mechanism: new teachers need time to plan, good feedback on their performance, and successful colleagues to provide models and coaching. Most of all, the new teacher needs to focus on developing positive habits that will lead to the qualities listed in Part I; these cannot develop where the teacher's major concern is survival.

These three phases -- intellectual knowledge, practical knowledge, and integration into practice -- are central to the development of all teaching (although, as we said above, they do not necessarily need to occur in sequence in all cases) (ASCD, 1986). Applied to the problems addressed by this document, these phases point to some suggestions for a system for vocational teacher development in Maine.

Building a Base of Knowledge: The Legs of a Stool

We have asserted that students, the learning environment, and the technical field make up three fundamental dimensions of the teacher's work. We shall think of these as the three legs of a stool which, when fitted tightly and functioning sturdily, will represent effective vocational teaching. These three dimensions are most amenable to exploration by the new teacher in the form of what we have called "intellectual knowledge" (first phase) and "practical knowledge" (second phase).

Knowledge About Students: Certainly, a teacher new to vocational education need not wait to meet students in order to learn about them. Formal learning experiences which focus on adolescence, motivation, learning styles, and the manner in which trade

information and work attitudes are learned can constitute an important core in the teacher's introduction to teaching. For that teacher, special emphasis should be given to the particular sorts of student the vocational school contains. As Part I noted, this is apt to include a disproportionate number of adolescents who are at risk socially and academically and who present unique instructional, motivational and management challenges.

Study of students and their characteristics has value in helping the teacher construct a preliminary "mental map" of what students are like and how they might react to teachers and to the lab. This level of knowledge, however, has little chance to significantly influence how teachers will behave in the school unless they are given opportunities to use that knowledge in settings that demand that competence. In a second phase, then, teachers need to observe and interact with students, to "diagnose" learning needs, and even to try strategies either directly with students or through experienced teachers. Simulations and case studies of real "student situations" must be experienced, debated, and studied in order to help develop a practical approach to dealing with students.

The Learning Environment: The vocational teacher is responsible for creating a learning environment which meets the individual needs of students and keeps them successfully engaged with the content. To do this, teachers need to be competent in designing, implementing, and monitoring the materials, equipment, work tasks, and student grouping arrangements of the laboratory. This is a complex and demanding task. At its core, the task requires that the teacher know the basic variables of the vocational learning environment and understand how they interact with one another. These variables can be studied separately and understood: types of materials, types of equipment, types of work/learning tasks, grouping arrangements of students, managements systems for students, and time/space allocations.

Applying this knowledge is a juggling act; it requires as much practice under controlled conditions as can be afforded. Hence, opportunities to observe working labs and to apprentice to teachers who are making decisions about the environment are invaluable experiences. Most importantly, the new teacher (and most veterans as well) need to understand the options presented to them in the mixtures of these variables; each different arrangement of equipment, work tasks, time, and student grouping, for example, can meet a different set of instructional objectives. Teachers need to practice with these arrangements and to observe others doing the same in order to capitalize on the vast potential of the vocational lab setting later on.

Converting Trade Knowledge to Lessons for Students: Two major issues are at stake for the vocational teacher in relation to this area. First, the teacher must be a competent tradesperson; he or she must possess the trade knowledge. Second, the teacher must be

competent in deciding how to use that trade knowledge in order to meet the needs of students and the goals of the school. The former involves the mastery of content, the latter, the mastery of planning.

While we will assume that tradespeople hired to teach in Maine's vocational schools are masters of their content, it is far from safe to assume that they can therefore plan and convey that content well for students to learn. Indeed, teachers who have a solid understanding of their content sometimes find it difficult to translate these understandings to their students (we often teach as we were taught, packaging information as it makes sense to us, not as it makes sense to students). Teachers who are learning about teaching in the early phases can study different ways of structuring and sequencing knowledge and different modes of communicating it to others. They can examine different types of curriculum (for example, individual competency-based modules vs. teacher-directed and group paced instruction). Considerable resources are available in vocational teacher training programs now for this purpose.

Most importantly, once again, teachers must be directed and encouraged to take this knowledge about their content and about planning curriculum and to apply it in limited practice. This task is more easily accomplished than practicing with students and with the learning environment. Curriculum sequences can be created and then tried out by experienced teachers with the new recruit observing. Or specific lessons or work sequences can be tried out by the new teacher with the veteran or trainer alongside.

Developing Pedagogical Skills and Judgment: The Seat of the Stool

The three elements of teacher development explored so far in this section -- knowledge of students, of the learning environment, and of one's technical field -- are somewhat independent topics. As such, they can be studied and arranged separately; each one has its own basis in its own field (for example, knowledge of students is based in psychology and sociology). Further, each topic can and must be "learned" in several ways: intellectually (that is, facts, theories and concepts about the topic) and practically (that is, in forms which are applicable to real work with children, with specific technical knowledge and skills, and with a "real" classroom or laboratory). Any teacher development program or course must engage the future or current teacher in these topics and in both forms of learning.

Successful teaching, however, will not automatically result from successfully mastering these three areas alone. Successful teaching involves the integration of the teacher's knowledge in these three fundamental spheres. It hinges upon combining knowledge about students, knowledge about technical curriculum, and knowledge about the learning environment into something greater than the sum of the parts. We will call this new level of

knowledge "pedagogical skills and judgments". It refers to a) the teacher's ability to assess the learning needs of students and the learning options found within the curriculum and the environment; and to b) the teacher's concurrent ability to make a good plan for those students and to carry it out through valid decisions and instructional activities.

For the vocational educator, as for any educator, pedagogical skills and judgment are like the seat of a milking stool. It is supported by the three legs represented by the three basic areas of knowledge. Further, it is incomplete and unstable without all three legs and, obviously, cannot even serve its purpose well without any of them. Similarly, the three legs are rendered useless and remain unconnected without the seat. It is this image of the fourth and integrating aspect of vocational teaching we shall use in the ensuing pages.

Substantial evidence exists in the research on teaching that pedagogical skills and judgment cannot fully develop outside real classrooms (Lieberman, 1986). For new educators with sound technical proficiency, this means that the culmination of teacher development must occur while the new teacher is in a "real school" teaching "real kids"; that is, during what we have termed the third phase of teacher development. (Unfortunately, this learning-on-the-job is the only early training many teacher experience; with neither knowledge of teaching nor practice to back them up, the habits such teachers form are more likely to serve their survival needs than students' learning needs).

This phase of the teacher's development must center on the growth of skills and judgment in the following aspects of teaching (Hunter, 1984):

1. Effectively guaging the learning needs of a particular set of students on a daily basis, including their cognitive, behavioral, and affective requrements at any given time; Identifying these as goals, expressed as desired "learner behaviors" for the students.

2. Identifying and organizing "content" appropriate to the needs identified in the specific group of students (again, pertaining to technology, to student behavior and attitudes, and to student feelings).

3. Structuring the learning environment and the group of students in order to maximize achievement of these goals; these are managerial decisions which require knowledge about the uses of specific equipment, of materials and procedures, and of different learning styles and arrangments of students

4. Employing teacher behaviors which will generate desired student behaviors through the use of curriculum, environment, grouping decisions, and equipment which have been selected.

This vital phase reqires a combination of motivational skills, communication skills, and alertness to feedback from students; these must be processed through sound decision-making as the learning is going on if they are to make the teaching successful.

5. Collecting continuous evidence of student learning (again, of technical content, of behaviors, and of attitudes such as those involved in teamwork); and, through the effective use of judgment and interpersonal skills, providing feedback to all students in such a manner that their new learning and/or relearning is enhanced.

These are generally very difficult competencies to develop. They require extensive time and extensive practice in which feedback is provided and a premium is placed on experimenting with new approaches (Little, 1983). For Maine's vocational teachers, many of whom are hired without these two conditions present, this presents a major obstacle to the development of good teaching at the most critical time of one's career, the beginning. Unfortunately, there is no substitute for these conditions; unlike knowledge about student characteristics or a technical procedure, learning about teaching in an isolated classroom at the "fact" or "concept" level will not suffice. It is learning how to make the judgments and decisions of teaching and getting feedback on how well one performs the basic communication, interpersonal, and structuring skills which ultimately enhances the teacher's performance.

Part III SUGGESTIONS FOR A TEACHER DEVELOPMENT SYSTEM IN MAINE

The remainder of this document is devoted to suggesting how the state of Maine and its teacher development personnel and resources might be arranged to support the development of effective teachers who are a) entering the teaching force without a teaching degree or b) currently employed in a secondary vocational school. In making these suggestions, we acknowledge the presence of important resources at the School of Applied Science at the University of Southern Maine, at the Department of Educational and Cultural Services, and in each vocational region. Our suggestions purposely build upon and extend beyond these. They are intended as fodder for the policy and program discussions which must precede the future development of services for this important group of professionals.

At the broadest level, we suggest here the establishment of a **system** of resources and incentives that supports vocational teacher development (Loucks-Horsley et. al, 1987; Ch. 1 and 2). Currently in Maine, salary incentives and recertification requirements are used to induce teachers to take courses and attend workshops and institutes. These methods of teacher improvement and advancement put the responsibility for further development essentially on the individual. If significant improvement is to be expected in the work of all teachers, however, such learning opportunities must be established as critical components of all teachers' jobs. Joyce and Showers state that "education is the only complex occupation where institutions have been ambivalent about providing continuing education for their employees" (1987, p.2).

A **system of teacher development must make steady improvement in teaching a central obligation of the professional teacher and it must provide the resources, training, and working conditions necessary to cultivate that continuous growth**. The fluid nature of both the technical and instructional knowledge base of vocational education demands the continuous updating of teachers. The complexities of the vocational lab and the challenges of preparing students in trade skills and work habits make vocational teaching ever open to improvement. Needless to say, a system that supports such work calls for the backing, understanding, and creative energies of people and agencies throughout the state.

While staff development systems vary significantly, several attributes characterize the most successful ones. McLaughlin and Marsh (1979) studied one hundred staff development programs and found that the successful ones had the following characteristics:

1. Training was concrete, continuous, and tied to the real instructional problems of the teacher

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2. Local resource personnel provided direct follow-up assistance to teachers after group training activities

3. Peer observation and peer discussion provided the teachers with reinforcement and encouragement

4. The school leader participated in the training activities

5. Regular project meetings were held with teachers for problem-solving and adapting the techniques and skills that were not working as expected

6. Released time was used for teachers instead of monetary payment for after-school work

7. Training and development activities were planned with teachers prior to and during throughout the activity period.

A system to support new vocational teachers as well as veteran teachers should reflect as many of these attributes as possible. In many respects, the climate and resources we see necessary for vocational teachers should mirror the climate and resources we strive to create for vocational students (the parallels between vocational student development and teacher development, we think, should not be overlooked). In the following pages, we make nine suggestions to stimulate the planning effort toward this end in Maine.

Pre-Teaching Experiences

It is painfully obvious, both from the above discussion and from common sense, that vocational educators must have some organized introduction to teaching prior to facing their first classes of students. Unfortunately, many vocational instructors are hired during the summer and their pre-teaching "training" consists of orientations by supervisors and peers, if they are lucky. Their training comes through the time-tested, but often stressful, method of "baptism by fire". We assume, given the market for vocational teachers, that many teachers will continue to be hired "at the last moment".

Clearly, Maine must interrupt this pattern if we are to have highly competent teachers in our schools. **Suggestions #1: Provide mandatory pre-teaching institutes at regional sites for new entrants to the profession who have had no introduction to teaching.** These might have two forms: a summer series for newly hired teachers and a school year series for tradespeople who anticipate entering (or have recently entered) the teaching force. Such institutes could build from current summer and other inservice experiences in the state; for new initiates to teaching, however, they should be a prerequisite (or concurrent requirement) to beginning work in the center.

Two kinds of preparation can occur in such institutes: introduction to knowledge about the three "legs of the stool" and focused practice on relating this knowledge to "real" students, laboratory activities, and schools. The first of these goals can be addressed in short, lively "skull sessions". Their central purpose would be to acquaint the novice teacher in the abstract with a) adolescents and how they learn and act; b) the basic purposes of vocational education and how their technical knowledge must be understood to fit these purposes; and c) the means by which the school's environment can be used to teach to these purposes. The content of these three areas is described further in the previous sections of this document.

The second goal of the institutes would be to have the novice teacher apply this knowledge to "real" segments of the vocational world (phase two). Teachers would practice using the concepts and facts they have gained in controlled situations where they are supported in their attempts to act upon what they have learned. The goal is to test out what the books and instructors say with some samples of vocational school life. This would require gathering samples of teaching situations, of students, of curriculum design problems, and other commonly faced issues and challenging teachers to understand them using the knowledge they bring both as invidividuals and as a group. Such samples can be gathered through videotapes, through direct observation, through presentations by veteran teachers and by students, and through simulations. These experiences, too, should not be isolated from the "skull sessions"; in fact, they should be interwoven with them, so that the new teachers come to understand the relationship of knowledge about students, curriculum content, and learning facilities to the daily flow of the real lab.

Suggestion #2: The Pre-Teaching Institutes should be conducted by experienced vocational teachers and specialists in the three areas of study. The key here is the combination of experiential knowledge and theoretical knowledge; these are best combined by teams of resource people and training leaders who reflect these backgrounds. In the best situation, the experienced teachers would be colleagues of the new teachers when they begin teaching and would be able to provide continuous training and support (similar to that envisioned in proposed certification procedures).

Going On Line

Whatever the form of the pre-teaching experience, the most crucial period in a teacher's development comes at the outset of "real teaching". Here, the teacher feels less need for cognitive content about teaching and seeks vast amounts of assistance in integrating knowledge with actions in order to make the class run properly. We propose that this period is the prime opportunity for positive assistance and intervention in the development of these teachers; it is where the "three legs" are first brought together to form a "seat" of good pedagogical skills and judgment.

Suggestion #3: New teachers should receive intensive, continuous instruction about the "three legs of the stool" as it is relevant to assisting them making decisions in their classrooms. Clearly, personnel in the school must be trained and available for this task; but assistance can also be provided through regular regional seminars conducted by personnel removed from the school (to avoid complications with evaluation). The central focus of these training experiences must be on the individual teacher's work. Primarily, it should concentrate on students and the teacher's understanding and handling of them, on the technical content and keeping it properly organized for presentation, and on managing the learning laboratory. It is absolutely essential that the teacher's performance and work itself constitute the central material of learning.

Implement Immediately

Suggestion #4: Administrators, veteran teachers, and specialists must be trained and then made available for individualized "mentorships" and small group seminars on site for at least two years. Vocational students need guided practice for competency development; so do teachers; their growth cannot be left to self-guided learning contracts alone. Hence, personnel at the school with skills in supervision, in the crucial knowledge areas of effective teaching, and with sound pedagogical judgment themselves must be available to the novice teacher. They must be able to observe the novice's classroom as well as to provide consultation on at least a weekly basis from the start. Periodic regional sessions to deal with specific content and to address common problems could serve a useful function as well.

Ideally, the novice teacher would not teach the full load at first. Though this is difficult to do, split-session vocational centers might have new teachers teaching half-day and training with experienced teachers or attending courses the remainder of the day.

Continuing Development: Services and Obligations

Vocational educators, as do other secondary educators, require continuing incentives and opportunities to improve their teaching and their leadership of students. We have learned repeatedly in recent years that greater effectiveness in these two central aspects of our work leads to greater satisfaction with that work, thus creating a very productive spiral of improvement. Secondary vocational educators must have the opportunity as well as the encouragement to learn about the unique conditions that make the vocational laboratory a powerful teaching environment. They need support in attempting regularly to use those lessons in their own teaching.

Suggestion #5: Take immediate steps to involve all secondary vocational educators in training designed to create a common language of teaching for Maine's vocational schools and to use this language in professional development and certification activities. Maine has learned from its early work with the new certification

process that a) peer involvement in teacher development can be a powerful force and b)to be effective, it requires a common understanding of the teaching process (Seager and Donaldson, 1986). Parts I and II of this document provide the seeds of such a common understanding; these must be built upon to create a system for assessing each teacher's professional development needs (a Vocational Teacher Action Plan), for establishing peer observation and supervision procedures, and for providing specific means of assisting individual teachers or groups of teachers. New teachers who have been brought into the profession in the manner outlined above would likely have these conditions already in place.

Implement through Inservice Contracting 1988-89.

Suggestion #6: Provide regional sessions focused on significant skills and concepts in each of the "three legs" of the model and demonstrating the integration of knowledge and skills into sound pedagogical judgment (the "seat"). These might be billed as professional educator seminars and could be held monthly. They might deal with a variety of topics centered around "problems of improving my teaching", such as creating and using a behavior modification system for a recalcitrant student or designing a new teamwork system to improve supervision of the lab. In any case, these sessions should draw on local educators for the sorts of problems they deal with and for the demonstration of possible solutions. This would create collegial groups in regions focused around the improvement of teaching, a structure which has proven productive elsewhere (Little, 1982; Joyce and Showers, 1982). These, too, could be easily tied to recertification and, with the involvement of university personnel, to a degree program. The most readily available structure for planning and delivering them might be the professional development centers currently being developed by DECS and the University of Maine System.

None of the foregoing suggestions can have the impact intended without the involvement and support of school administrators. **Suggestion #7: Vocational administrators, including DECS personnel, must lead the effort to improve teacher development by becoming proficient as instructional supervisors and leaders.** Because of the decentralized nature of our vocational system, it is unrealistic to assume that the state will provide extensive programs and personnel for teacher development. Frankly, it is now assumed (and reinforced by school improvement regulations) that school site administrators will be trained and motivated to see to this vital aspect of their schools' operation.

Thus, the state must provide first and foremost a means of giving all administrators a thorough working knowledge of vocational pedogogy (that is, what is generally described in this document). The vocational administrator, one would hope, is a skilled craftsperson in the handling of students, the shaping of technical knowledge into meaningful curriculum, and the productive use of vocational environments for teaching. Upon this base, a series of training experiences and on-going development needs to be provided by the state and its professional resources. Administrators,

perhaps for certification purposes but at least for their own professional developmental purposes, should have available regular seminars and inservice programs which focus on instructional improvement and on the supervision, evaluation and support of teachers.

The outcome of this intiative should be a cohort of vocational administrators possessing the skills in observation, feedback, and consultation necessary to helping teachers develop their own teaching skills and judgment. As leaders of the professional improvement of their schools, these men and women would be intimately involved in organizing, championing, and supervising the entire system of professional teacher development.

Finally, we include two suggestions about accomplishing the massive shift in practice which these remarks imply. Clearly, if these are to be even partially accomplished, Maine's vocational education establishment must rely heavily on existing personnel and resources. **Suggestion #8: Regional resource networks, the university system, the Bureau of Adult and Secondary Vocational Education, and professional associations and meetings must be directed and encouraged to make instructional development in the vocational setting a major and continuous focus.**

It is most realistic to capitalize on required school improvement and certification systems to impel this movement into reality. Where schools and individuals see a need for development and have resources to provide for it, services are apt to spring up. But we urge a more proactive approach than this. We feel it is highly desirable to establish immediately regular voluntary inservice opportunities which have as their focus instructional matters (such as a vocational educator's academy or an association for vocational instructional development). Such activities among other educators (such as ASCD and the Maine Principals' Academy) have created momentum toward growth that includes a steadily widening circle of educators; these efforts benefit from being viewed as voluntary (and thereby as more "professional").

Our last suggestion addresses the matter of leadership. We suspect that instruction has not been a major priority in vocational education because the leadership at all levels has been preoccupied with other agendas. **Suggestion #9: Leadership must be exerted from the state level and at the building level to place instructional development in a prominent position on state and local agendas and to advocate strongly for a system of services.** Where vocational educators gather regularly, as do the directors on a monthly basis, instructional issues, topics, and solutions should become a part of the standard fare. Similarly, when members of state government, of the university system, and of the public are engaged with vocational educational issues, someone must be the champion of this instructional agenda among them. This will require the presence in the Bureau and probably in the

university system of leaders and educators who can confidently assert the importance of these issues. Ultimately, these leaders must effectively assemble the human, academic, and financial resources necessary to meet the challenges described here.

CONCLUSION

Secondary vocational schools in Maine as elsewhere are blessed by rich and flexible learning conditions. Although the student body attending these schools often has reason to feel unsuccessful as students, they attend primarily because they want to. Many teachers, vocational or otherwise, would cherish the opportunity to teach such "voluntary participants" in such productive conditions. The time has come for the Maine educational establishment to recognize the need to prepare all vocational teachers professionally and to sustain their professional development as long as they choose to teach.

This document has provided a basis for launching a discussion about how to do this. Whether the reader agrees with all its assertions or not, the fundamental issues it raises should not go ignored. Any discussion of educational improvement must be concerned with teachers and their development. Any attempt at improving teacher performance must be concerned with what the teaching job is and with what it demands of a teacher. Part I of this document has addressed these broad areas; discussion leading to program planning can benefit from this beginning understanding of these issues.

Once some consensus exists regarding the nature of vocational teaching in Maine's secondary schools, the task of specifying the training needs of both novices and veterans can proceed. Part II has dealt with these needs in a brief but comprehensive manner. However, it has borrowed substantially from the growing literature on teacher training and development and has pointed out how the state is already, in its certification and school improvement reforms, moving in an appropriate direction to support this new focus on vocational teaching. Further discussion and planning must capitalize on both these movements.

Finally, educators and civic leaders who contemplate the suggestions described in Part III should remain mindful of the new ground they are breaking. Remarkably little is written about the unique conditions of the vocational lab as a place for adolescents to learn. Only in recent years, supported by the National Center for Research in Vocational Education and by state level organizations, have we begun examining the teaching process so that we can more effectively prepare and sustain professional vocational teachers. Maine's efforts once again will pioneer new territory not just for our state but for many others as well.

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